

Oxbow Lake

Location

Pond Number: 050252

Watershed: Upper Hudson River

County: Hamilton

Topographic Quadrangle: Lake Pleasant

Sample Site

Latitude: 43° 26.260'

Longitude: 74° 29.252'

Morphometry

Surface Area: 282 Ac.

Mean Depth: 5 Ft.

Maximum Depth: 10 Ft.

Volume: 1,307 Ac.

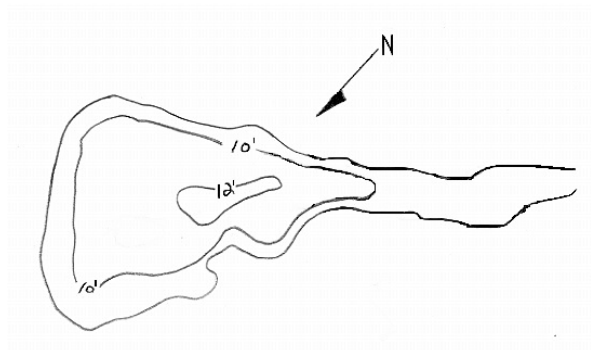
Watershed Area: 3,257 Ac.

Hydraulic Retention Time: 0.11 Yr.

Shoreline Length: 4.3 Mi.

Elevation: 1,706 Ft.

Water Quality Classification: B



Temperature and Dissolved Oxygen

Oxbow Lake had a minimum DO of 0.8 mg/L (August 1993), with a minimum temperature of 7.0°C and a maximum temperature of 24.8°C.

pH

Figure 154 presents the seasonal mean pH trend in Oxbow Lake, while Table 121 presents descriptive statistics for pH in Oxbow Lake. The pH in Oxbow Lake exhibited an increasing trend from 1995 to 1997 followed by stable but somewhat variable conditions. The pH in Oxbow Lake was similar to the county average.

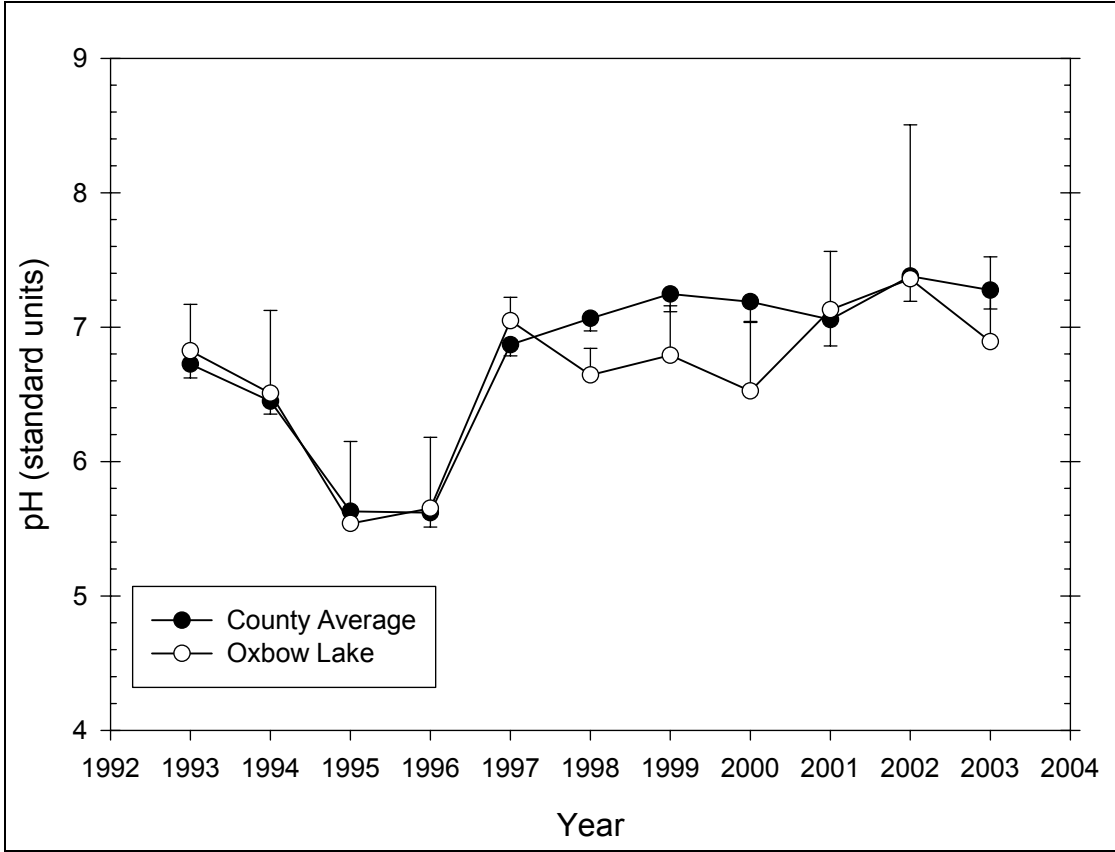


Figure 154 Seasonal mean pH trend in Oxbow Lake

Table 121 – Descriptive Statistics for pH in Oxbow Lake

| Year | Size | Missing | Mean | Std Dev | Std. Error | C.I. of Mean |
|------|-------|---------|-------|---------|------------|--------------|
| 1993 | 6 | 1 | 6.824 | 0.278 | 0.124 | 0.345 |
| 1994 | 6 | 0 | 6.508 | 0.587 | 0.240 | 0.616 |
| 1995 | 6 | 0 | 5.540 | 0.581 | 0.237 | 0.610 |
| 1996 | 6 | 0 | 5.652 | 0.505 | 0.206 | 0.530 |
| 1997 | 6 | 0 | 7.048 | 0.165 | 0.0674 | 0.173 |
| 1998 | 6 | 0 | 6.643 | 0.189 | 0.0772 | 0.198 |
| 1999 | 5 | 0 | 6.790 | 0.298 | 0.133 | 0.370 |
| 2000 | 6 | 0 | 6.525 | 0.487 | 0.199 | 0.511 |
| 2001 | 5 | 0 | 7.130 | 0.349 | 0.156 | 0.434 |
| 2002 | 4 | 0 | 7.360 | 0.720 | 0.360 | 1.145 |
| 2003 | 5 | 0 | 6.892 | 0.508 | 0.227 | 0.631 |
| | | | | | | |
| Year | Range | Max | Min | Median | 25% | 75% |
| 1993 | 0.710 | 7.250 | 6.540 | 6.710 | 6.645 | 7.018 |
| 1994 | 1.750 | 7.320 | 5.570 | 6.500 | 6.320 | 6.840 |
| 1995 | 1.630 | 6.130 | 4.500 | 5.640 | 5.350 | 5.980 |
| 1996 | 1.260 | 6.580 | 5.320 | 5.390 | 5.330 | 5.900 |
| 1997 | 0.380 | 7.270 | 6.890 | 6.995 | 6.910 | 7.230 |
| 1998 | 0.510 | 6.880 | 6.370 | 6.690 | 6.470 | 6.760 |
| 1999 | 0.800 | 7.110 | 6.310 | 6.870 | 6.640 | 6.960 |
| 2000 | 1.210 | 7.140 | 5.930 | 6.385 | 6.220 | 7.090 |
| 2001 | 0.960 | 7.610 | 6.650 | 7.100 | 6.935 | 7.348 |

| 2002 | 1.630 | 8.050 | 6.420 | 7.485 | 6.810 | 7.910 |
|------|----------|----------|-----------|-----------|--------|----------------|
| 2003 | 1.230 | 7.550 | 6.320 | 6.920 | 6.433 | 7.288 |
| | | | | | | |
| Year | Skewness | Kurtosis | K-S Dist. | K-S Prob. | Sum | Sum of Squares |
| 1993 | 0.998 | 0.407 | 0.259 | 0.307 | 34.120 | 233.144 |
| 1994 | -0.389 | 0.953 | 0.208 | 0.500 | 39.050 | 255.875 |
| 1995 | -1.282 | 1.935 | 0.205 | 0.513 | 33.240 | 185.836 |
| 1996 | 1.656 | 2.147 | 0.365 | 0.012 | 33.910 | 192.922 |
| 1997 | 0.623 | -1.911 | 0.224 | 0.404 | 42.290 | 298.210 |
| 1998 | -0.470 | -0.873 | 0.264 | 0.208 | 39.860 | 264.982 |
| 1999 | -1.191 | 2.117 | 0.247 | 0.367 | 33.950 | 230.876 |
| 2000 | 0.439 | -1.508 | 0.276 | 0.164 | 39.150 | 256.637 |
| 2001 | 0.0114 | 0.927 | 0.187 | 0.650 | 35.650 | 254.673 |
| 2002 | -0.782 | -0.616 | 0.216 | 0.578 | 29.440 | 218.232 |
| 2003 | 0.164 | -1.728 | 0.197 | 0.612 | 34.460 | 238.532 |

Alkalinity

Figure 155 presents the seasonal mean alkalinity trend in Oxbow Lake, while Table 122 presents descriptive statistics for alkalinity in Oxbow Lake. The alkalinity in Oxbow Lake exhibited no discernible trend. The alkalinity in Oxbow Lake was similar to the county average.

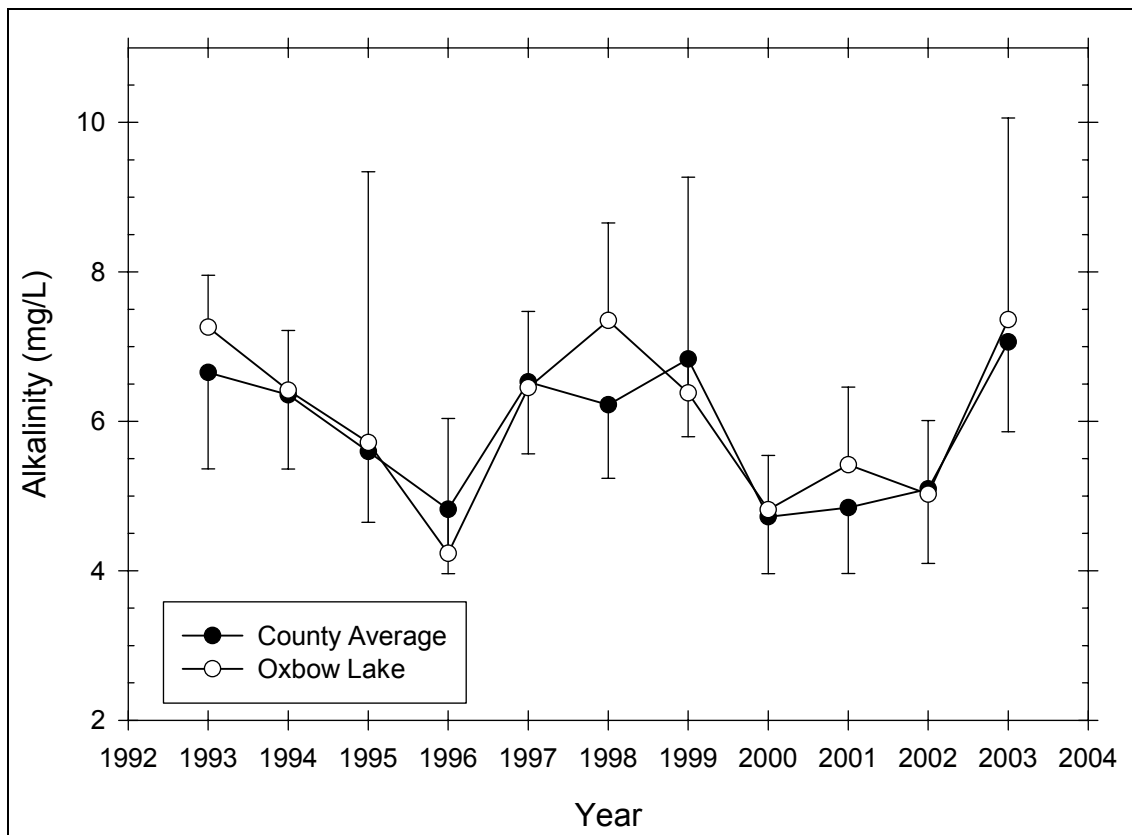


Figure 155 Seasonal mean alkalinity trend in Oxbow Lake

Table 122 – Descriptive Statistics for Alkalinity in Oxbow Lake

| Year | Size | Missing | Mean | Std Dev | Std. Error | C.I. of Mean |
|------|----------|----------|-----------|-----------|------------|----------------|
| 1993 | 6 | 1 | 7.260 | 0.559 | 0.250 | 0.695 |
| 1994 | 6 | 0 | 6.417 | 0.763 | 0.311 | 0.800 |
| 1995 | 6 | 0 | 5.717 | 3.453 | 1.410 | 3.624 |
| 1996 | 6 | 0 | 4.233 | 1.721 | 0.703 | 1.806 |
| 1997 | 6 | 0 | 6.450 | 0.973 | 0.397 | 1.021 |
| 1998 | 6 | 0 | 7.350 | 1.244 | 0.508 | 1.305 |
| 1999 | 6 | 1 | 6.380 | 2.325 | 1.040 | 2.887 |
| 2000 | 6 | 0 | 4.817 | 0.694 | 0.283 | 0.728 |
| 2001 | 6 | 1 | 5.420 | 0.835 | 0.373 | 1.037 |
| 2002 | 6 | 2 | 5.025 | 0.618 | 0.309 | 0.984 |
| 2003 | 6 | 1 | 7.360 | 2.174 | 0.972 | 2.700 |
| Year | Range | Max | Min | Median | 25% | 75% |
| 1993 | 1.500 | 7.900 | 6.400 | 7.400 | 6.925 | 7.600 |
| 1994 | 1.900 | 7.100 | 5.200 | 6.650 | 5.900 | 7.000 |
| 1995 | 9.500 | 8.600 | -0.900 | 6.600 | 5.600 | 7.800 |
| 1996 | 4.500 | 5.500 | 1.000 | 4.800 | 3.800 | 5.500 |
| 1997 | 2.000 | 7.200 | 5.200 | 7.000 | 5.200 | 7.100 |
| 1998 | 3.100 | 8.800 | 5.700 | 7.400 | 6.500 | 8.300 |
| 1999 | 4.700 | 8.400 | 3.700 | 7.700 | 3.925 | 8.175 |
| 2000 | 1.600 | 5.700 | 4.100 | 4.800 | 4.200 | 5.300 |
| 2001 | 2.100 | 6.100 | 4.000 | 5.700 | 5.050 | 5.950 |
| 2002 | 1.300 | 5.500 | 4.200 | 5.200 | 4.550 | 5.500 |
| 2003 | 5.400 | 11.100 | 5.700 | 6.600 | 6.000 | 8.250 |
| Year | Skewness | Kurtosis | K-S Dist. | K-S Prob. | Sum | Sum of Squares |
| 1993 | -0.860 | 1.176 | 0.199 | 0.603 | 36.300 | 264.790 |
| 1994 | -0.828 | -0.638 | 0.278 | 0.157 | 38.500 | 249.950 |
| 1995 | -1.828 | 3.667 | 0.320 | 0.055 | 34.300 | 255.710 |
| 1996 | -1.701 | 2.949 | 0.234 | 0.352 | 25.400 | 122.340 |
| 1997 | -0.926 | -1.881 | 0.345 | 0.025 | 38.700 | 254.350 |
| 1998 | -0.157 | -2.153 | 0.253 | 0.258 | 44.100 | 331.870 |
| 1999 | -0.567 | -3.207 | 0.315 | 0.109 | 31.900 | 225.150 |
| 2000 | 0.157 | -2.636 | 0.272 | 0.179 | 28.900 | 141.610 |
| 2001 | -1.730 | 3.164 | 0.290 | 0.180 | 27.100 | 149.670 |
| 2002 | -0.984 | -0.620 | 0.279 | 0.307 | 20.100 | 102.150 |
| 2003 | 1.836 | 3.525 | 0.311 | 0.119 | 36.800 | 289.760 |

Total Phosphorus

Figure 156 presents the seasonal mean total phosphorus trend in Oxbow Lake, while Table 123 presents descriptive statistics for total phosphorus in Oxbow Lake. The total phosphorus in Oxbow Lake exhibited a decreasing trend from 1993 to 2002. The total phosphorus in Oxbow Lake was slightly higher than or similar to the county average, though any difference was not statistically significant.

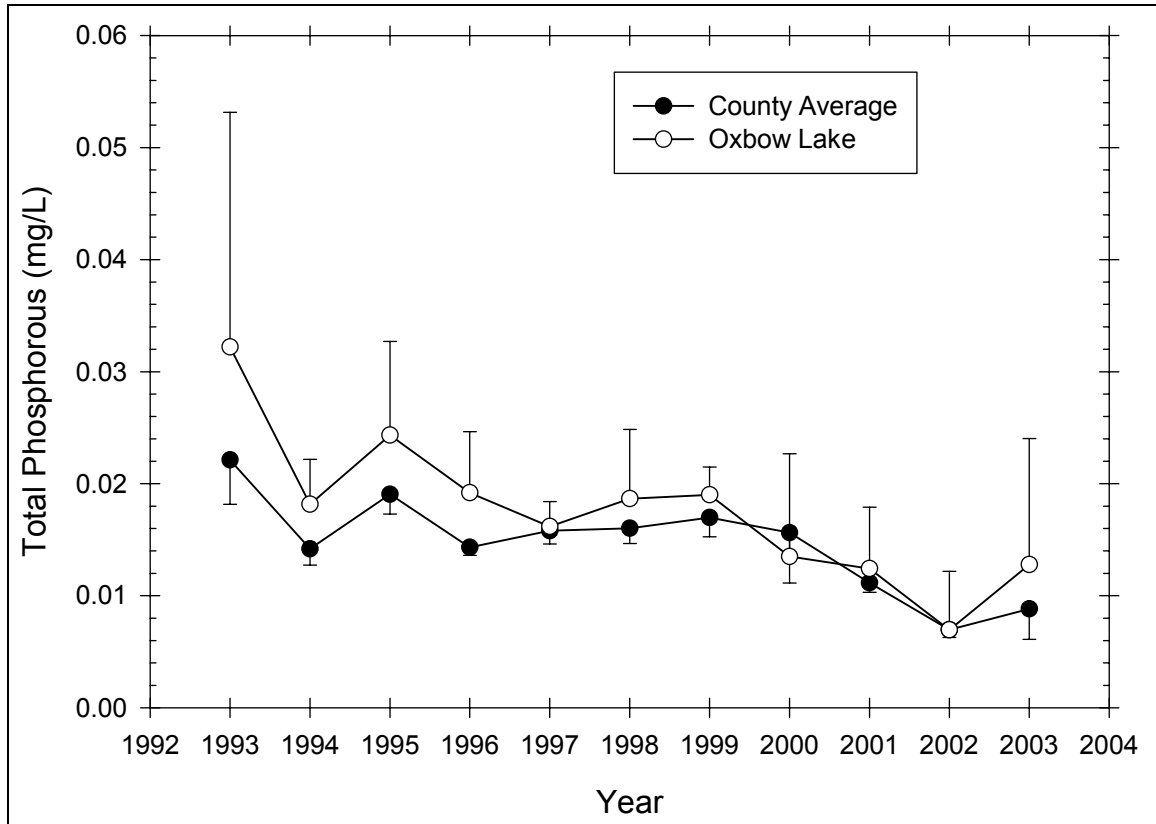


Figure 156 Seasonal mean total phosphorus trend in Oxbow Lake (2003 outlier of 0.116 changed to 0.016)

Table 123 – Descriptive Statistics for Total Phosphorus in Oxbow Lake

| Year | Size | Missing | Mean | Std Dev | Std. Error | C.I. of Mean |
|------|---------|---------|---------|---------|------------|--------------|
| 1993 | 6 | 1 | 0.0322 | 0.0169 | 0.00755 | 0.0210 |
| 1994 | 6 | 0 | 0.0182 | 0.00382 | 0.00156 | 0.00401 |
| 1995 | 6 | 0 | 0.0243 | 0.00797 | 0.00325 | 0.00836 |
| 1996 | 5 | 0 | 0.0192 | 0.00438 | 0.00196 | 0.00544 |
| 1997 | 6 | 0 | 0.0162 | 0.00214 | 0.000872 | 0.00224 |
| 1998 | 6 | 0 | 0.0187 | 0.00589 | 0.00240 | 0.00618 |
| 1999 | 6 | 1 | 0.0190 | 0.00200 | 0.000894 | 0.00248 |
| 2000 | 6 | 1 | 0.0135 | 0.00738 | 0.00330 | 0.00917 |
| 2001 | 6 | 1 | 0.0124 | 0.00442 | 0.00198 | 0.00549 |
| 2002 | 6 | 2 | 0.00695 | 0.00329 | 0.00165 | 0.00524 |
| 2003 | 6 | 1 | 0.0328 | 0.0475 | 0.0212 | 0.0589 |
| | | | | | | |
| Year | Range | Max | Min | Median | 25% | 75% |
| 1993 | 0.0370 | 0.0500 | 0.0130 | 0.0250 | 0.0205 | 0.0500 |
| 1994 | 0.01000 | 0.0230 | 0.0130 | 0.0185 | 0.0150 | 0.0210 |
| 1995 | 0.0190 | 0.0340 | 0.0150 | 0.0230 | 0.0180 | 0.0330 |
| 1996 | 0.0110 | 0.0260 | 0.0150 | 0.0170 | 0.0165 | 0.0222 |
| 1997 | 0.00600 | 0.0190 | 0.0130 | 0.0160 | 0.0150 | 0.0180 |
| 1998 | 0.0170 | 0.0290 | 0.0120 | 0.0175 | 0.0150 | 0.0210 |
| 1999 | 0.00500 | 0.0220 | 0.0170 | 0.0180 | 0.0177 | 0.0205 |
| 2000 | 0.0200 | 0.0250 | 0.00500 | 0.0120 | 0.00912 | 0.0175 |
| 2001 | 0.0110 | 0.0170 | 0.00600 | 0.0145 | 0.00893 | 0.0153 |
| 2002 | 0.00690 | 0.0113 | 0.00440 | 0.00605 | 0.00440 | 0.00950 |

| | | | | | | |
|-------------|-----------------|-----------------|------------------|------------------|------------|-----------------------|
| 2003 | 0.114 | 0.116 | 0.00180 | 0.0155 | 0.00480 | 0.0475 |
| Year | Skewness | Kurtosis | K-S Dist. | K-S Prob. | Sum | Sum of Squares |
| 1993 | 0.265 | -2.656 | 0.265 | 0.279 | 0.161 | 0.00632 |
| 1994 | -0.159 | -1.511 | 0.185 | 0.623 | 0.109 | 0.00205 |
| 1995 | 0.244 | -2.091 | 0.207 | 0.504 | 0.146 | 0.00387 |
| 1996 | 1.114 | 0.500 | 0.292 | 0.174 | 0.0960 | 0.00192 |
| 1997 | -0.137 | -0.270 | 0.198 | 0.554 | 0.0970 | 0.00159 |
| 1998 | 1.125 | 1.669 | 0.212 | 0.476 | 0.112 | 0.00226 |
| 1999 | 0.937 | -0.188 | 0.291 | 0.177 | 0.0950 | 0.00182 |
| 2000 | 0.911 | 1.596 | 0.219 | 0.504 | 0.0675 | 0.00113 |
| 2001 | -0.791 | -0.699 | 0.281 | 0.214 | 0.0621 | 0.000849 |
| 2002 | 0.927 | -0.912 | 0.281 | 0.299 | 0.0278 | 0.000226 |
| 2003 | 2.047 | 4.305 | 0.368 | 0.025 | 0.164 | 0.0144 |

Nitrate

Figure 157 presents the seasonal mean nitrate trend in Oxbow Lake, while Table 124 presents descriptive statistics for nitrate in Oxbow Lake. The nitrate in Oxbow Lake was relatively low, and exhibited a slight decreasing trend from 1997 to 2003. The nitrate in Oxbow Lake was significantly lower than the county average.

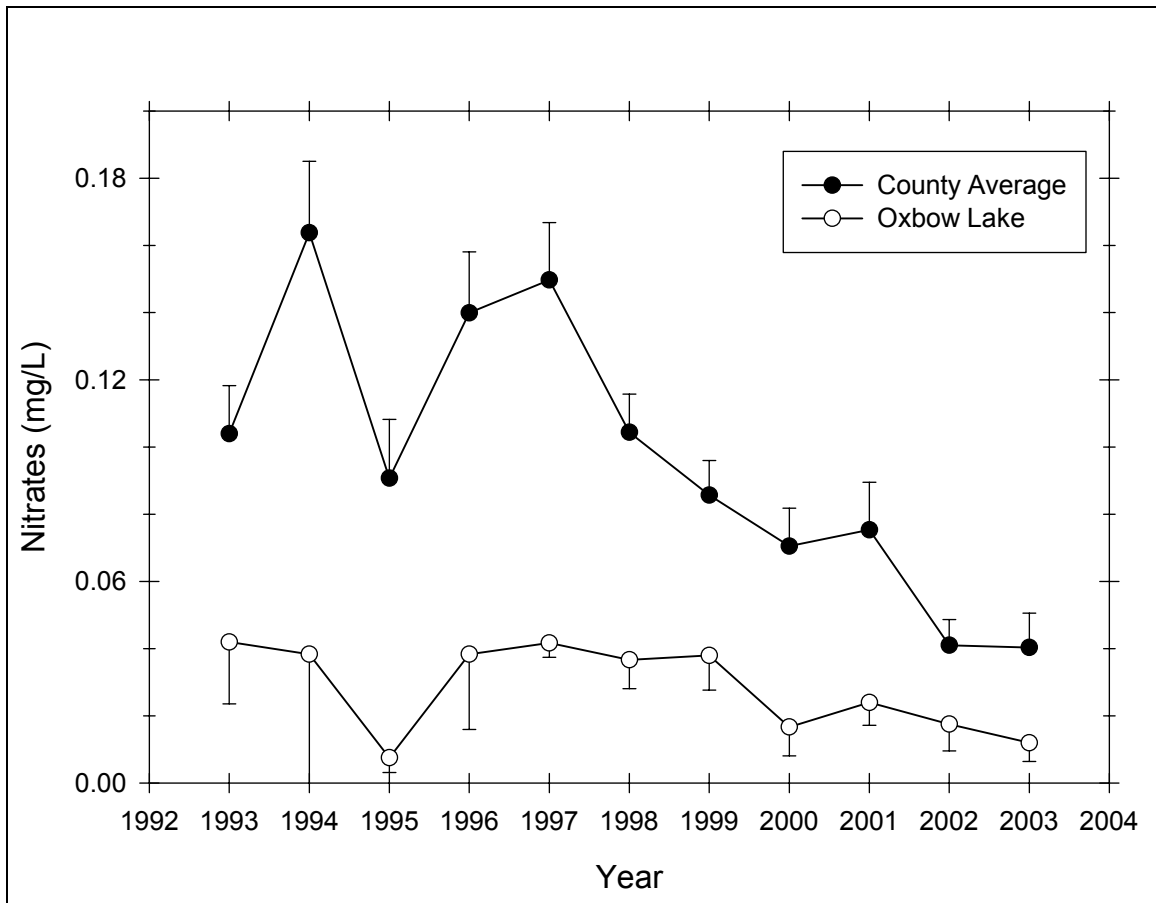


Figure 157 Seasonal mean nitrate trend in Oxbow Lake

Table 124 – Descriptive Statistics for Nitrate in Oxbow Lake

| Year | Size | Missing | Mean | Std Dev | Std. Error | C.I. of Mean |
|------|----------|----------|-----------|-----------|------------|----------------|
| 1993 | 6 | 1 | 0.0420 | 0.0148 | 0.00663 | 0.0184 |
| 1994 | 6 | 0 | 0.0383 | 0.0382 | 0.0156 | 0.0401 |
| 1995 | 6 | 0 | 0.00750 | 0.00418 | 0.00171 | 0.00439 |
| 1996 | 6 | 0 | 0.0383 | 0.0214 | 0.00872 | 0.0224 |
| 1997 | 6 | 0 | 0.0417 | 0.00408 | 0.00167 | 0.00428 |
| 1998 | 6 | 0 | 0.0367 | 0.00816 | 0.00333 | 0.00857 |
| 1999 | 6 | 1 | 0.0380 | 0.00837 | 0.00374 | 0.0104 |
| 2000 | 6 | 0 | 0.0167 | 0.00816 | 0.00333 | 0.00857 |
| 2001 | 6 | 1 | 0.0240 | 0.00548 | 0.00245 | 0.00680 |
| 2002 | 6 | 2 | 0.0175 | 0.00500 | 0.00250 | 0.00796 |
| 2003 | 6 | 1 | 0.0120 | 0.00447 | 0.00200 | 0.00555 |
| Year | Range | Max | Min | Median | 25% | 75% |
| 1993 | 0.0400 | 0.0600 | 0.0200 | 0.0400 | 0.0350 | 0.0525 |
| 1994 | 0.1000 | 0.110 | 0.01000 | 0.0250 | 0.01000 | 0.0500 |
| 1995 | 0.01000 | 0.01000 | 0.000 | 0.01000 | 0.00500 | 0.01000 |
| 1996 | 0.0500 | 0.0700 | 0.0200 | 0.0300 | 0.0200 | 0.0600 |
| 1997 | 0.01000 | 0.0500 | 0.0400 | 0.0400 | 0.0400 | 0.0400 |
| 1998 | 0.0200 | 0.0500 | 0.0300 | 0.0350 | 0.0300 | 0.0400 |
| 1999 | 0.0200 | 0.0500 | 0.0300 | 0.0400 | 0.0300 | 0.0425 |
| 2000 | 0.0200 | 0.0300 | 0.01000 | 0.0150 | 0.01000 | 0.0200 |
| 2001 | 0.01000 | 0.0300 | 0.0200 | 0.0200 | 0.0200 | 0.0300 |
| 2002 | 0.01000 | 0.0200 | 0.01000 | 0.0200 | 0.0150 | 0.0200 |
| 2003 | 0.01000 | 0.0200 | 0.01000 | 0.01000 | 0.01000 | 0.0125 |
| Year | Skewness | Kurtosis | K-S Dist. | K-S Prob. | Sum | Sum of Squares |
| 1993 | -0.552 | 0.868 | 0.246 | 0.368 | 0.210 | 0.00970 |
| 1994 | 1.713 | 2.923 | 0.253 | 0.257 | 0.230 | 0.0161 |
| 1995 | -1.537 | 1.429 | 0.392 | 0.004 | 0.0450 | 0.000425 |
| 1996 | 0.874 | -1.344 | 0.318 | 0.057 | 0.230 | 0.0111 |
| 1997 | 2.449 | 6.000 | 0.492 | <0.001 | 0.250 | 0.0105 |
| 1998 | 0.857 | -0.300 | 0.293 | 0.112 | 0.220 | 0.00840 |
| 1999 | 0.512 | -0.612 | 0.231 | 0.448 | 0.190 | 0.00750 |
| 2000 | 0.857 | -0.300 | 0.293 | 0.112 | 0.1000 | 0.00200 |
| 2001 | 0.609 | -3.333 | 0.367 | 0.026 | 0.120 | 0.00300 |
| 2002 | -2.000 | 4.000 | 0.441 | 0.006 | 0.0700 | 0.00130 |
| 2003 | 2.236 | 5.000 | 0.473 | <0.001 | 0.0600 | 0.000800 |

Chlorophyll a

Figure 158 presents the seasonal mean chlorophyll *a* trend in Oxbow Lake, while Table 125 presents descriptive statistics for chlorophyll *a* in Oxbow Lake. The chlorophyll *a* in Oxbow Lake exhibited an increasing trend from 1997 to 2001 and a decreasing trend from 2001 to 2003. The chlorophyll *a* in Oxbow Lake was slightly higher than the county average, though this difference was not statistically significant.

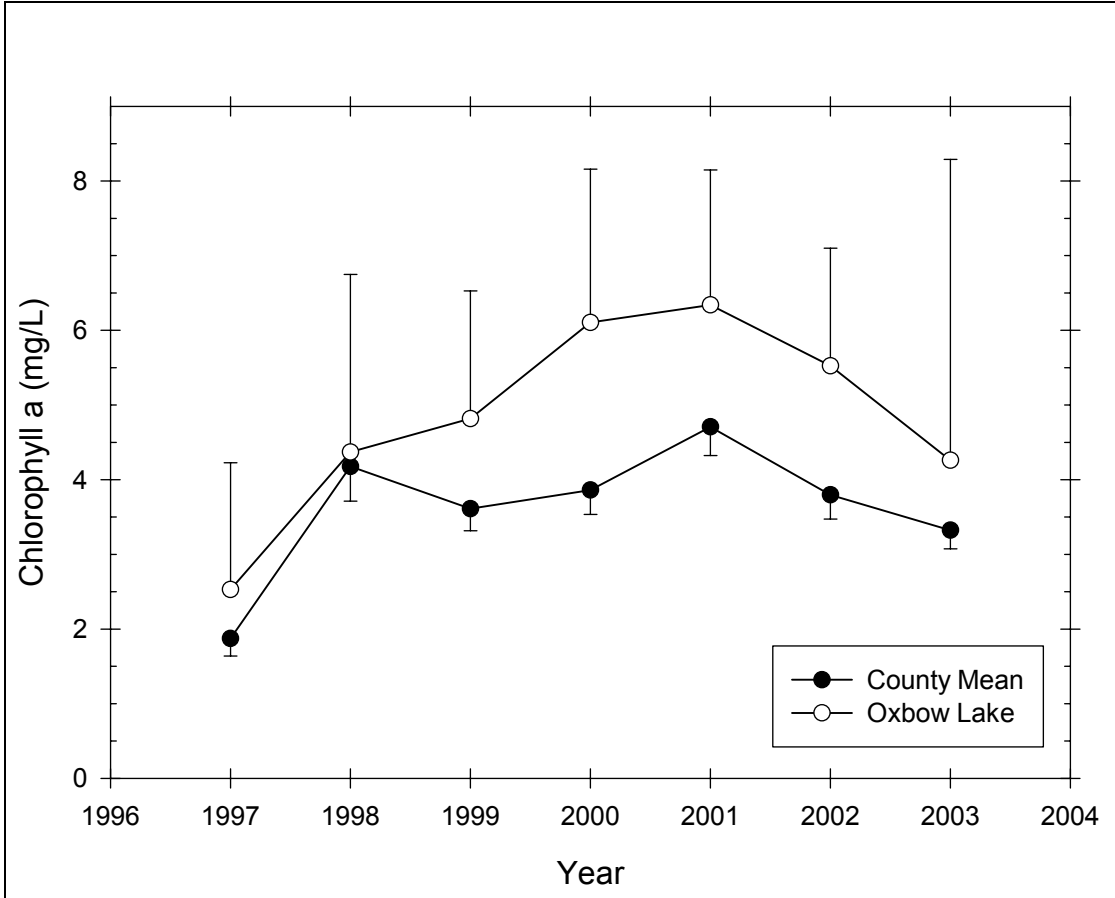


Figure 158 Seasonal mean chlorophyll a trend in Oxbow Lake

Table 125 – Descriptive Statistics for Chlorophyll a in Oxbow Lake

| Year | Size | Missing | Mean | Std Dev | Std. Error | C.I. of Mean |
|------|----------|----------|-----------|-----------|------------|----------------|
| 1997 | 6 | 0 | 2.530 | 1.617 | 0.660 | 1.696 |
| 1998 | 6 | 0 | 4.370 | 2.268 | 0.926 | 2.380 |
| 1999 | 6 | 1 | 4.818 | 1.377 | 0.616 | 1.709 |
| 2000 | 6 | 0 | 6.105 | 1.956 | 0.799 | 2.053 |
| 2001 | 6 | 1 | 6.340 | 1.456 | 0.651 | 1.808 |
| 2002 | 6 | 2 | 5.525 | 0.991 | 0.495 | 1.576 |
| 2003 | 6 | 3 | 4.260 | 1.625 | 0.938 | 4.037 |
| Year | Range | Max | Min | Median | 25% | 75% |
| 1997 | 4.380 | 5.030 | 0.650 | 2.015 | 1.630 | 3.840 |
| 1998 | 6.280 | 7.940 | 1.660 | 3.875 | 2.900 | 5.970 |
| 1999 | 2.680 | 5.920 | 3.240 | 5.660 | 3.353 | 5.890 |
| 2000 | 4.360 | 8.250 | 3.890 | 6.050 | 4.140 | 8.250 |
| 2001 | 3.900 | 8.250 | 4.350 | 6.080 | 5.513 | 7.402 |
| 2002 | 1.910 | 6.430 | 4.520 | 5.575 | 4.675 | 6.375 |
| 2003 | 3.230 | 5.770 | 2.540 | 4.470 | 3.023 | 5.445 |
| Year | Skewness | Kurtosis | K-S Dist. | K-S Prob. | Sum | Sum of Squares |
| 1997 | 0.702 | -0.542 | 0.211 | 0.480 | 15.180 | 51.471 |
| 1998 | 0.660 | -0.205 | 0.174 | 0.673 | 26.220 | 140.295 |
| 1999 | -0.592 | -3.264 | 0.330 | 0.080 | 24.090 | 123.646 |

| | | | | | | |
|------|---------|--------|-------|-------|--------|---------|
| 2000 | 0.0438 | -2.329 | 0.197 | 0.559 | 36.630 | 242.757 |
| 2001 | -0.0730 | 0.182 | 0.181 | 0.673 | 31.700 | 209.456 |
| 2002 | -0.0734 | -5.457 | 0.289 | 0.267 | 22.100 | 125.047 |
| 2003 | -0.572 | -- | 0.218 | 0.593 | 12.780 | 59.725 |

Transparency

Figure 159 presents the seasonal mean transparency trend in Oxbow Lake, while Table 126 presents descriptive statistics for transparency in Oxbow Lake. The transparency in Oxbow Lake was stable throughout the period of record. The transparency in Oxbow Lake was significantly lower than the county average.

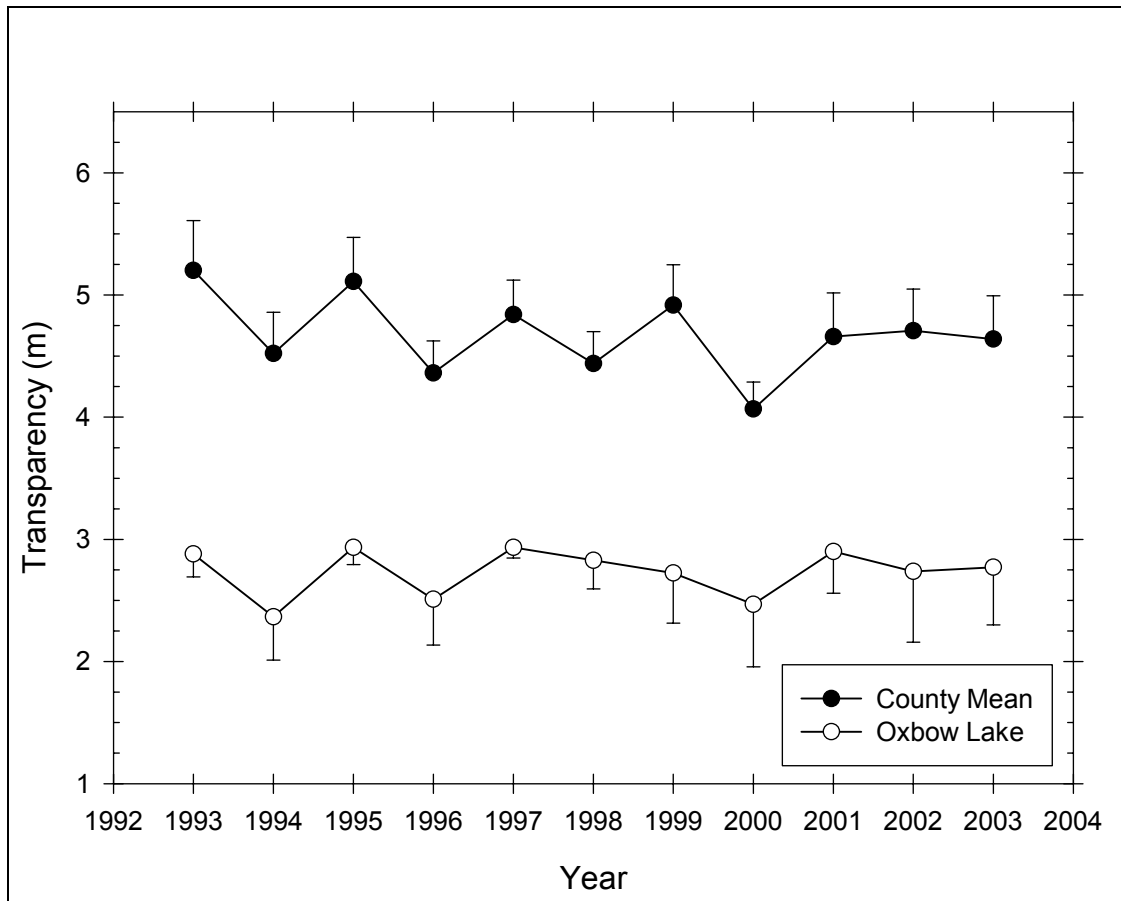


Figure 159 Seasonal mean transparency trend in Oxbow Lake

Table 126 – Descriptive Statistics for Transparency in Oxbow Lake

| Year | Size | Missing | Mean | Std Dev | Std. Error | C.I. of Mean |
|------|------|---------|-------|---------|------------|--------------|
| 1993 | 6 | 1 | 2.880 | 0.150 | 0.0671 | 0.186 |
| 1994 | 6 | 0 | 2.367 | 0.339 | 0.138 | 0.355 |
| 1995 | 6 | 0 | 2.933 | 0.133 | 0.0543 | 0.139 |
| 1996 | 6 | 0 | 2.510 | 0.357 | 0.146 | 0.375 |
| 1997 | 6 | 0 | 2.933 | 0.0816 | 0.0333 | 0.0857 |
| 1998 | 6 | 0 | 2.828 | 0.223 | 0.0909 | 0.234 |
| 1999 | 5 | 0 | 2.724 | 0.330 | 0.147 | 0.409 |

| | | | | | | |
|-------------|-----------------|-----------------|------------------|------------------|------------|-----------------------|
| 2000 | 6 | 0 | 2.468 | 0.488 | 0.199 | 0.512 |
| 2001 | 5 | 0 | 2.900 | 0.274 | 0.122 | 0.340 |
| 2002 | 4 | 0 | 2.737 | 0.364 | 0.182 | 0.579 |
| 2003 | 5 | 0 | 2.772 | 0.380 | 0.170 | 0.472 |
| | | | | | | |
| Year | Range | Max | Min | Median | 25% | 75% |
| 1993 | 0.300 | 3.030 | 2.730 | 2.880 | 2.730 | 3.030 |
| 1994 | 0.900 | 2.900 | 2.000 | 2.300 | 2.100 | 2.600 |
| 1995 | 0.400 | 3.150 | 2.750 | 2.900 | 2.900 | 3.000 |
| 1996 | 0.900 | 2.900 | 2.000 | 2.650 | 2.140 | 2.720 |
| 1997 | 0.200 | 3.100 | 2.900 | 2.900 | 2.900 | 2.900 |
| 1998 | 0.600 | 3.000 | 2.400 | 2.875 | 2.820 | 3.000 |
| 1999 | 0.880 | 3.150 | 2.270 | 2.700 | 2.518 | 2.962 |
| 2000 | 1.150 | 3.000 | 1.850 | 2.480 | 2.100 | 2.900 |
| 2001 | 0.700 | 3.300 | 2.600 | 2.900 | 2.675 | 3.075 |
| 2002 | 0.800 | 3.000 | 2.200 | 2.875 | 2.525 | 2.950 |
| 2003 | 1.050 | 3.250 | 2.200 | 2.810 | 2.575 | 2.987 |
| | | | | | | |
| Year | Skewness | Kurtosis | K-S Dist. | K-S Prob. | Sum | Sum of Squares |
| 1993 | 0.000 | -3.000 | 0.241 | 0.393 | 14.400 | 41.562 |
| 1994 | 0.707 | -0.512 | 0.189 | 0.602 | 14.200 | 34.180 |
| 1995 | 0.536 | 1.279 | 0.266 | 0.202 | 17.600 | 51.715 |
| 1996 | -0.706 | -1.389 | 0.266 | 0.200 | 15.060 | 38.438 |
| 1997 | 2.449 | 6.000 | 0.492 | <0.001 | 17.600 | 51.660 |
| 1998 | -1.848 | 3.823 | 0.318 | 0.057 | 16.970 | 48.245 |
| 1999 | -0.148 | 0.116 | 0.153 | 0.739 | 13.620 | 37.535 |
| 2000 | -0.125 | -2.551 | 0.252 | 0.264 | 14.810 | 37.748 |
| 2001 | 0.609 | -0.133 | 0.167 | 0.713 | 14.500 | 42.350 |
| 2002 | -1.822 | 3.465 | 0.371 | 0.056 | 10.950 | 30.373 |
| 2003 | -0.577 | 1.529 | 0.225 | 0.476 | 13.860 | 38.999 |

TSI

Figure 160 presents the Carlson trophic state index trend in Oxbow Lake. Transparency TSI was mesotrophic throughout the period of record. Total phosphorus TSI was mesotrophic for the period of record, with the exception of 1993 (eutrophic) and 2000 and 2002 (oligotrophic). Chlorophyll *a* TSI was eutrophic from 1998 to 2003 and mesotrophic in 1997.

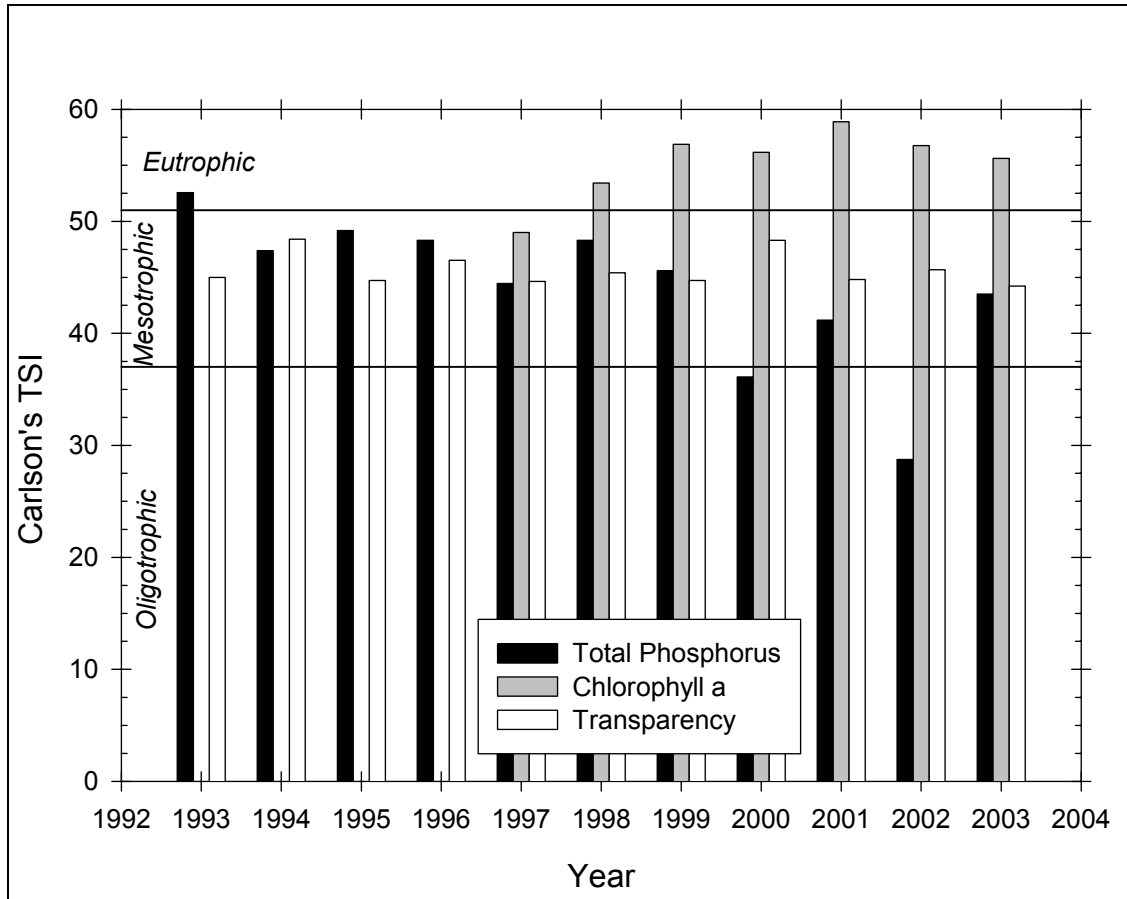


Figure 160 Carlson TSI trend in Oxbow Lake

Aluminum

Figure 161 presents the seasonal mean aluminum trend in Oxbow Lake, while Table 127 presents descriptive statistics for aluminum in Oxbow Lake. The aluminum in Oxbow Lake exhibited a decreasing trend from 1997 to 2003. The aluminum in Oxbow Lake was significantly lower than the county average, though this difference may not be statistically significant for some years.

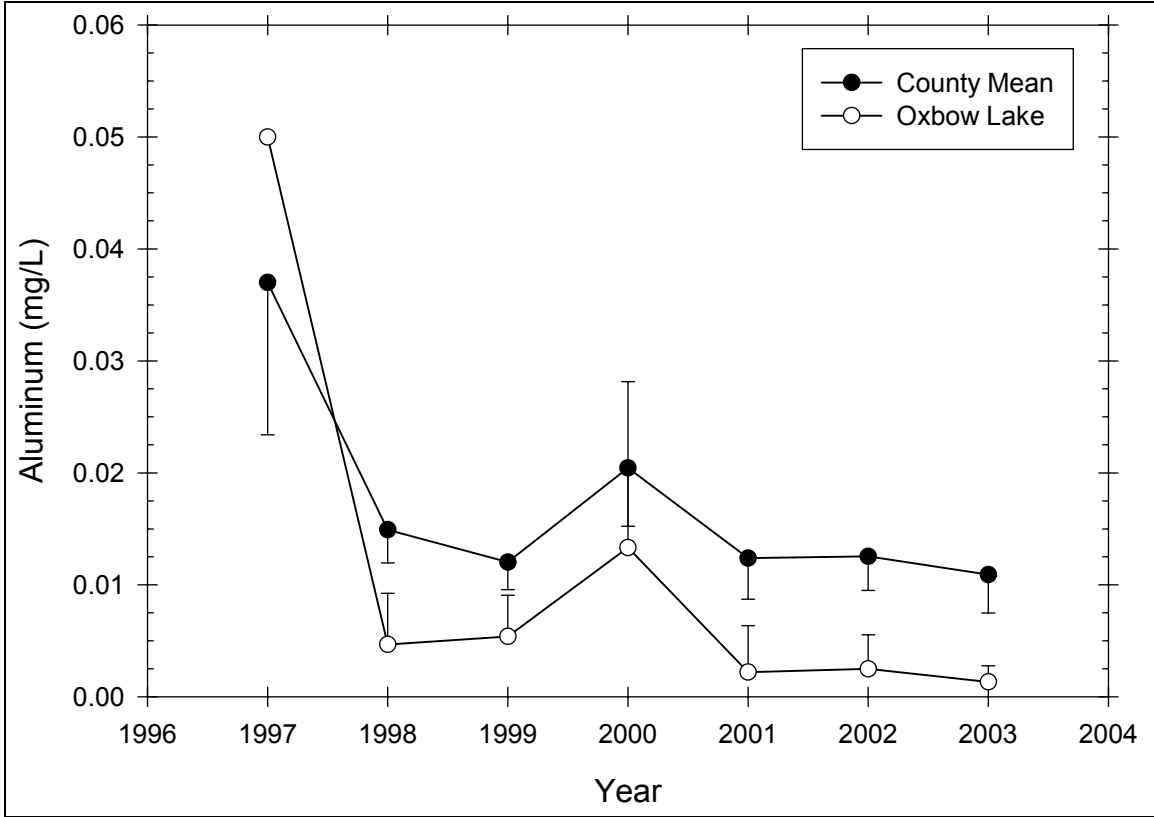


Figure 161 Seasonal mean aluminum trend in Oxbow Lake

Table 127 – Descriptive Statistics for Aluminum in Oxbow Lake

| Year | Size | Missing | Mean | Std Dev | Std. Error | C.I. of Mean |
|------|----------|----------|-----------|-----------|------------|----------------|
| 1997 | 6 | 5 | 0.0500 | -- | -- | -- |
| 1998 | 6 | 0 | 0.00467 | 0.00437 | 0.00178 | 0.00458 |
| 1999 | 6 | 1 | 0.00540 | 0.00297 | 0.00133 | 0.00368 |
| 2000 | 6 | 0 | 0.0133 | 0.0141 | 0.00577 | 0.0148 |
| 2001 | 6 | 1 | 0.00220 | 0.00335 | 0.00150 | 0.00416 |
| 2002 | 6 | 2 | 0.00250 | 0.00191 | 0.000957 | 0.00305 |
| 2003 | 6 | 3 | 0.00133 | 0.000577 | 0.000333 | 0.00143 |
| Year | Range | Max | Min | Median | 25% | 75% |
| 1997 | 0.000 | 0.0500 | 0.0500 | 0.0500 | 0.0500 | 0.0500 |
| 1998 | 0.0110 | 0.0110 | 0.000 | 0.00300 | 0.00200 | 0.00900 |
| 1999 | 0.00800 | 0.01000 | 0.00200 | 0.00500 | 0.00350 | 0.00700 |
| 2000 | 0.0400 | 0.0410 | 0.001000 | 0.01000 | 0.00600 | 0.0120 |
| 2001 | 0.00800 | 0.00800 | 0.000 | 0.001000 | 0.000 | 0.00350 |
| 2002 | 0.00400 | 0.00500 | 0.001000 | 0.00200 | 0.001000 | 0.00400 |
| 2003 | 0.001000 | 0.00200 | 0.001000 | 0.001000 | 0.001000 | 0.00175 |
| Year | Skewness | Kurtosis | K-S Dist. | K-S Prob. | Sum | Sum of Squares |
| 1997 | -- | -- | -- | -- | 0.0500 | 0.00250 |
| 1998 | 0.705 | -1.365 | 0.229 | 0.378 | 0.0280 | 0.000226 |
| 1999 | 0.885 | 1.449 | 0.220 | 0.502 | 0.0270 | 0.000181 |
| 2000 | 2.003 | 4.523 | 0.371 | 0.010 | 0.0800 | 0.00206 |
| 2001 | 1.913 | 3.764 | 0.324 | 0.094 | 0.0110 | 0.0000690 |
| 2002 | 0.855 | -1.289 | 0.283 | 0.289 | 0.01000 | 0.0000360 |

| | | | | | | |
|------|-------|----|-------|-------|---------|------------|
| 2003 | 1.732 | -- | 0.385 | 0.089 | 0.00400 | 0.00000600 |
|------|-------|----|-------|-------|---------|------------|

Calcium

Figure 162 presents the seasonal mean calcium trend in Oxbow Lake, while Table 128 presents descriptive statistics for calcium in Oxbow Lake. The calcium in Oxbow Lake exhibited an increasing trend from 1997 to 1999 and a decreasing trend from 1999 to 2003. The calcium in Oxbow Lake was slightly higher than the county average, though this difference was not statistically significant.

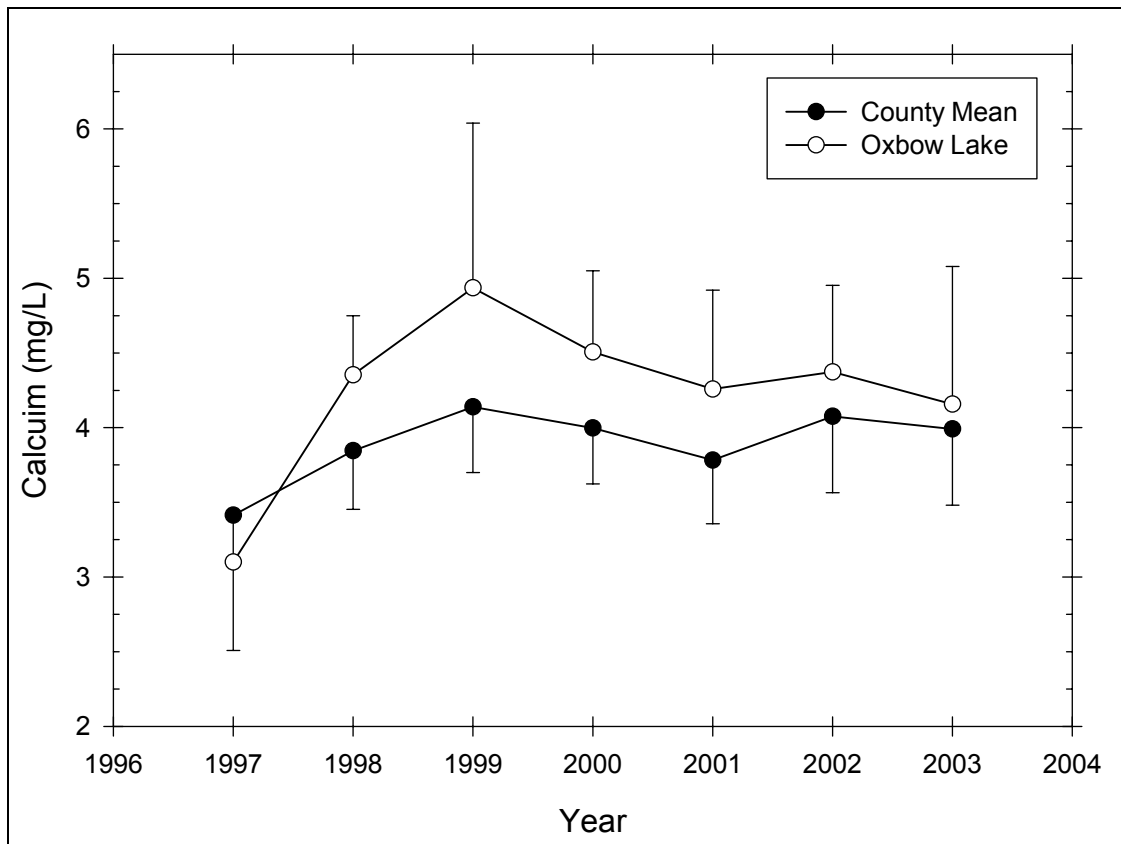


Figure 162 Seasonal mean calcium trend in Oxbow Lake

Table 128 – Descriptive Statistics for Calcium in Oxbow Lake

| Year | Size | Missing | Mean | Std Dev | Std. Error | C.I. of Mean |
|------|-------|---------|-------|---------|------------|--------------|
| 1997 | 6 | 5 | 3.100 | -- | -- | -- |
| 1998 | 6 | 0 | 4.353 | 0.378 | 0.154 | 0.396 |
| 1999 | 6 | 1 | 4.936 | 0.888 | 0.397 | 1.103 |
| 2000 | 6 | 0 | 4.507 | 0.519 | 0.212 | 0.544 |
| 2001 | 6 | 1 | 4.258 | 0.534 | 0.239 | 0.663 |
| 2002 | 6 | 2 | 4.373 | 0.364 | 0.182 | 0.580 |
| 2003 | 6 | 3 | 4.157 | 0.372 | 0.215 | 0.924 |
| Year | Range | Max | Min | Median | 25% | 75% |
| 1997 | 0.000 | 3.100 | 3.100 | 3.100 | 3.100 | 3.100 |
| 1998 | 1.030 | 5.010 | 3.980 | 4.300 | 4.020 | 4.510 |
| 1999 | 2.390 | 6.430 | 4.040 | 4.750 | 4.542 | 5.170 |

| 2000 | 1.420 | 5.440 | 4.020 | 4.450 | 4.070 | 4.610 |
|------|----------|----------|-----------|-----------|--------|----------------|
| 2001 | 1.270 | 5.150 | 3.880 | 4.020 | 3.888 | 4.550 |
| 2002 | 0.860 | 4.780 | 3.920 | 4.395 | 4.100 | 4.645 |
| 2003 | 0.730 | 4.480 | 3.750 | 4.240 | 3.873 | 4.420 |
| | | | | | | |
| Year | Skewness | Kurtosis | K-S Dist. | K-S Prob. | Sum | Sum of Squares |
| 1997 | -- | -- | -- | -- | 3.100 | 9.610 |
| 1998 | 1.098 | 1.252 | 0.191 | 0.589 | 26.120 | 114.423 |
| 1999 | 1.541 | 3.314 | 0.383 | 0.016 | 24.680 | 124.976 |
| 2000 | 1.313 | 2.002 | 0.254 | 0.251 | 27.040 | 123.205 |
| 2001 | 1.626 | 2.406 | 0.272 | 0.249 | 21.290 | 91.792 |
| 2002 | -0.319 | -0.274 | 0.150 | 0.710 | 17.490 | 76.873 |
| 2003 | -0.957 | -- | 0.255 | 0.479 | 12.470 | 52.111 |

Calcite Saturation Index

Figure 163 presents the calcite saturation index trend in Oxbow Lake. The CSI in Oxbow Lake exhibited a slight decreasing trend over the period of record, moving from moderately vulnerable to acid deposition to low vulnerability to acid deposition. The CSI in Oxbow Lake was slightly higher than the county average in some years, and other times slightly lower than the county average, though any difference was not statistically significant.

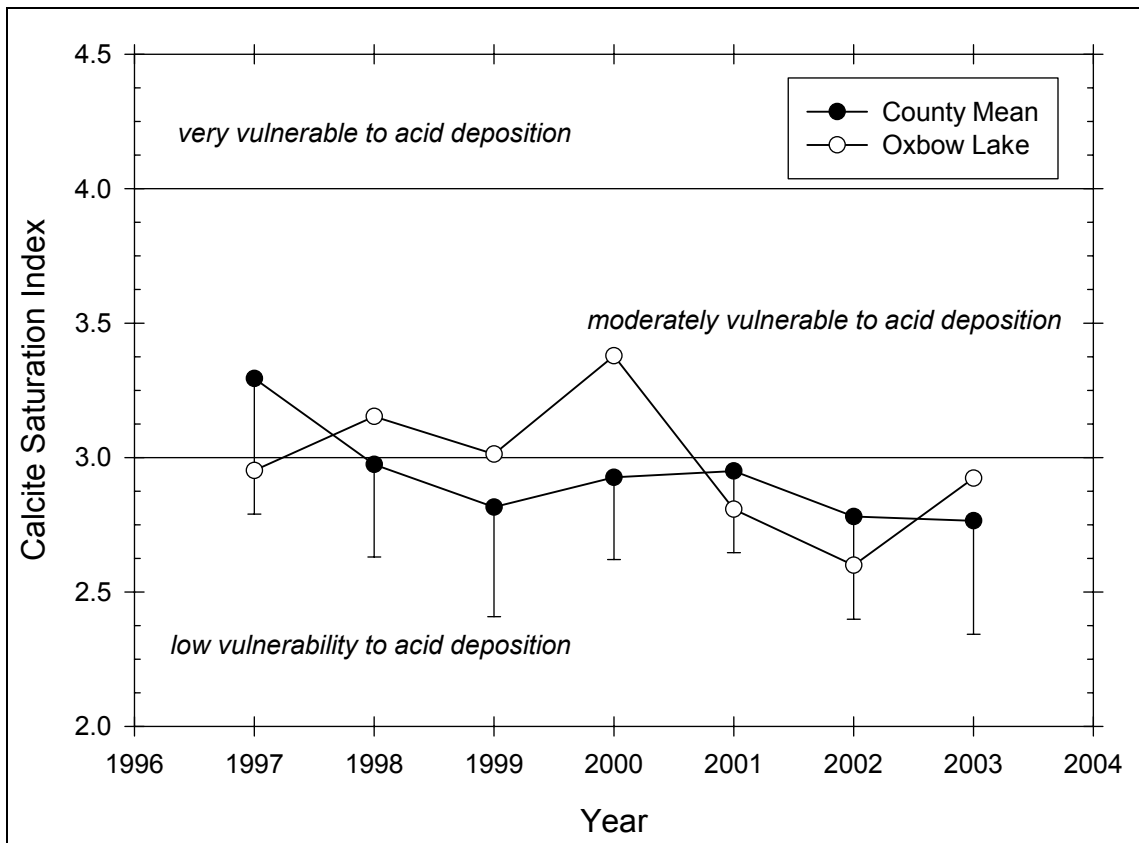


Figure 163 Seasonal mean CSI trend in Oxbow Lake